OBSERVATIONS ON TROPICAL AMERICAN MELASTOMES

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Leandra subulata sp. nov. An Sect. Secundiflorae? Frutex epiphyticus densissime strigosis. Folia parva petiolata ovata, inter venas sparsissime strigosa; flores 4-meri breviter pedicellati in cymis 3-floris terminalibus. Hypanthium obconicum; sepala brevia triangularia, dentibus exterioribus subulatis elongatis.

A branching leafy shrub as much as 1.8 m. tall; younger branches, petioles, pedicels, hypanthia, calyces, and veins of the leaves very densely strigose with spinulose-subulate, closely appressed, pale brown hairs about 3 mm. long. Leaves long-petioled, the blades ovate, 1.5--3.5 cm. long, 1--2 cm. wide, sharply acute or subacuminate, entire, ciliate, rounded at the base, 5-nerved or 7-pli-nerved, sparsely strigose on both sides between the veins. Flowers 4-merous, in terminal 3-flowered cymes, short-pediceled. Hypanthium obconic, 3 mm. long. Calyx-tube prolonged about 0.4 mm., the sinuses broadly rounded; sepals very thin, about 1 mm. long from the torus, triangular; exterior teeth erect, subulate, 5--6 mm. long. Petals pink, ovate, 4.2 mm. long, sharply acute. Stamens isomorphic; filaments flat, 2.5 mm. long, slightly widened distally, and at the summit abruptly narrowed; anthers oblong, obtuse, thick, 2 mm. long, 4-celled; connective elevated into a dorsal ridge and prolonged into a minute dorsal spur. Ovary inferior, apparently 3-celled; style straight, glabrous, 4.5 mm. long; stigma capitellate.

Type Allen 4804, collected on northern slopes of Cerro Horqueta, altitude 1800--2100 meters, in Bocas del Toro Province, Panama and deposited in the herbarium of the New York Botanical Garden. The plant was described by the collector as an epiphyte in the top of giant trees, a habit previously unknown to me in this genus.

Leandra strigosa sp. nov. Sect. Secundiflorae. A speciebus hujus sectionis adhuc descriptis differt pubescentia strigosa atque in hypanthio partim glandulosa, foliis 5-nerviis nec pli-nerviis.

Shrub 2 m. tall. Stems and petioles very densely strigose. Petioles 1--3 cm. long. Leaf-blades ovate-lanceolate or ovate, up to 15 cm. long and 10 cm. wide, long-acuminate, densely ciliate, denticulate, rounded at base, 5-nerved with an additional pair of marginal nerves, densely pubescent on both sides with spreading hairs 0.5--1 mm. long and strigose on the primary nerves. Inflorescence paniculate, 6--20 cm. long, the branches opposite, diverging at right angles, very

densely strigose. Flowers 5-merous, sessile and secund. Hypanthium deeply cup-shaped, about 2.2 mm. long to the torus, densely strigose with curved-ascending hairs increasing from 0.7 mm. long at the base to 1.7 mm. at the summit, and often gland-tipped. Calyx-tube prolonged about 0.25 mm. to rounded sinuses; sepals 0.8 mm. long from the torus, triangular-acuminate with concave sides; exterior teeth lacking. Petals narrowly triangular, 2.3 mm. long, gradually tapering to the tip. Stamens isomorphic, erect; filaments slender, glabrous, nearly straight, 2.8 mm. long; anthers oblong, straight, obtuse, 1—1.2 mm. long; connective completely simple. Ovary wholly inferior, 5-celled.

Type, Woodson, Allen and Seibert 415, collected between Río Tinta and Río Tabasará, Province of Chiriquí, Panama, in the herbarium of the Missouri Botanical Garden. I refer here also Allen 3672, from the Province of Colón, Panama, Archer 2073, from the Choco region of Colombia, and an old collection by Triana, also from Choco, and labeled in his own hand Clidemia sulcicaulis Poepp. L. strigosa has been placed in herbaria under L. dichotoma (D. Don) Cogn., which it closely resembles in habit and foliage. It is separated by its pubescence, which is distinctly strigose, and on the hypanthium often also glandular, while the hypanthial hairs of L. dichotoma are never glandular and those of the stem are retrorse at base or throughout their length.

Acisanthera uniflora comb. nov. (Rhexia uniflora Vahl, Symb. 2: 48. 1791; Rhexia recurva L. C. Rich. Act. Soc. Nat. Hist. Paris 1792: 108. 1792; Acisanthera recurva, of Cogn. Monog. and most subsequent literature.)

Loreya brunnescens comb. nov. (Henriettea brunnescens Standley, Field Mus. Publ. Bot. 4: 247. 1929.)

Having before him a plant without flowers, Standley referred it very naturally to the North American genus which it most closely resembled. Nevertheless, the type plant has all the aspect of the South American genus Loreya, hitherto unknown in North America, with leaves broadest near the middle, very strongly 5-pli-nerved, and simple hairs on all its parts. I transfer Standley's plant accordingly.

Clidemia densiflora comb. nov. (Henriettella densiflora Standley, Field Mus. Publ. Bot. 4: 247. 1929.)

Material recently received of this odd plant shows that the petals are distinctly obtuse and lack the cucullate apex so characteristic of both Henriettella and Ossaea.

Calyptrella micrantha sp. nov. Frutex subglaber, caulibus junioribus, paginis inferioribus at hypanthiis minutis-

sime punctatis; folia elliptica graciliter petiolata, ad basin imam biappendiculata; flores 5-meri pedicellati in paniculam multiflora; calyx in alabastro acuminatus falcatus, mox ad torum deciduus; petala lanceolata acuminata; stamina isomorpha; antherae lanceolatae; connectivum infra thecas breviter productum in calcar minutum dorsalem.

Shrub to 5 m. tall, the younger stems, petioles, lower leaf-surface and hypanthia dotted with minute hyaline atoms. Petioles slender, 3--5 cm. long. Leaf-blades elliptic, thin, up to 20 cm. long, two-fifths to half as wide, abruptly caudate-acuminate, entire, obtuse at base, and appendiculate on each side of the petiole, glabrous above, 3-nerved with an additional pair of marginal veins; secondary veins 6--8 mm. apart, diverging at an angle of about 70°. Peduncle terminal, 2--4 cm. long, erect; panicle many-flowered, up to 9 cm. long, the slender branchlets terminating in cymules of 3--5 5-merous flowers on slender pedicels 3--5 mm. long. Hypanthium cup-shaped, 2 mm. long. Calyx acuminately conic in bud, often falcate, 3 mm. long; exterior teeth minute, tuberculiform. Petals white, narrowly lanceolate, long-acuminate, 3 mm. long. Stamens isomorphic; anthers lanceolate, the thecae 2.6 mm. long, the connective prolonged straight back 0.9 mm. and acute at the tip. Ovary superior; style elongate; stigma punctiform.

Type, von Wedel 2249, from Fish Creek Mountains, Bocas del Toro Province, Panama; it has been divided into two portions, one with larger panicle and more flowers in the herbarium of the Missouri Botanical Garden, the other with better leaves in the herbarium of the New York Botanical Garden.

Those who have identified, or tried to identify, melastomes from the Venezuelan Andes by the aid of Cogniaux' Monograph have probably been puzzled by seven species, numbered 334 to 340 inclusive, in Miconia section Amblyarrhena. Since the leaves are strongly 3--5-pli-nerved and the flowers are 4-merous, their position in the Monograph is clearly indicated. The difficulty comes in referring a plant to a particular one of the species. That is often done by comparing it with named herbarium material, which has led to placing most specimens into M. spinulosa Naud. and M. ulmarioides Naud.

There was little material available to Cogniaux when he wrote the Monograph. He cited only 20 collections, of which thirteen were in the two species mentioned. He could easily have made mistakes.

His chief error was in placing M. Barbeyana Cogn. into this group of species. Careful examination of the type specimen in the Boissier Herbarium showed that the flowers are actually 5-merous. It is a Peruvian plant, it differs also

in other ways from the six Venezuelan species, and should be removed to a different place in the classification. Since I have no present access to the two collections of the species known to me (the second a recent collection by Sandeman, now in the Kew Herbarium), I shall not attempt to place it more correctly.

Further study of type material of the other six species convinces me that they should be reduced to four. M. aegrotans Naud. and M. ulmarioides Naud., originally described on the same page, should be united under the latter name; this name is selected because more specimens are so named in herbaria. M. spinulosa Naud. and M. inaperta Naud. should also be combined under the former name, which I have selected for the same reason; it has the negligible advantage of fifteen pages of priority as well.

The four Venezuelan species, as I now understand them, may be distinguished without dissection of the flower by the following artificial key:

Leaves 5-pli-nerved; flowers (at least the laterals) distinctly pediceled; exterior teeth broader than long.
  Leaves abruptly short-acuminate; secondary veins strongly elevated beneath. M. octoscenidium Naud.
  Leaves slenderly acuminate; secondary veins often plane beneath. M. spinulosa Naud.
Leaves 3-pli-nerved; flowers sessile or very nearly so; exterior teeth longer than wide (0.8 mm. long).
  Leaves of an oblong type, widest at or near the middle, acute or abruptly short-acuminate. M. arbutifolia Naud.
  Leaves of a lanceolate or ovate-lanceolate type, broadest well below the middle and slenderly acuminate. M. ulmarioides Naud.

In the mountains of southwestern Colombia a fifth species occurs which is obviously related to the four Venezuelan species discussed above. It has the 5-pli-nerved leaves of the first two in the key, the sessile flowers of the last. It differs from all in its much smaller panicle, and usually also in its strictly entire leaves. The geographical separation is about 500 miles.

Miconia prasinifolia sp. nov. Sect. Amblyarrhena. Folia ad basin subsessilem sensim cuneato-angustata, valde 5-plinervia, integra; panicula parva pauciflora; flores 4-meri.

Shrub with glabrous stem. Leaves on petioles 0--10 mm. long; blades elliptic, up to 23 cm. long and 9 cm. wide, entire, gradually or more often abruptly narrowed to a slender obtuse point, cuneately narrowed at the base, smooth above, thinly stellate-furfuraceous beneath on the veins and veinlets, strongly 5-pli-nerved, the inner pair of lateral veins

arising 2--5 cm. above the base; veins plane above, beneath prominulous and reticulate, the secondaries 5--10 mm. apart. Panicle, including the short peduncle, 2--6 cm. long, nearly or quite glabrous. Flowers few, sessile, 4-merous. Hypanthium campanulate, glabrous, 2.6 mm. long. Calyx-tube scarcely developed; sepals broadly rounded from subacute sinuses, 0.4 mm. long; exterior teeth firm, appressed, resembling the sepals in shape and size but conspicuously apiculate. Petals ovate-lanceolate, obtuse, white, 3.6 mm. long. Stamens isomorphic; filaments 2 mm. long, the basal three-fourths thick and slightly flattened, the upper fourth sharply bent, slender, terete; anthers semi-ovoid, 1.7 mm. long, opening by a minute terminal pore; connective stout, not prolonged or appendaged. Ovary half-inferior; style straight, terete, glabrous, 6 mm. long; stigma punctiform.

Type, Killip & Hazen 9011, collected at Río Santa Rita, Salento, Department of Caldas, Colombia, in dense forests at an altitude of 1600--1800 meters, deposited in the herbarium of the New York Botanical Garden. Killip & Smith 10136 was collected at the same place a month later; Lehmann B.T. 1195 from Timbiqui is also identical.

Miconia torta sp. nov. Sect. Cremanium. Caules juniores et petioli glanduloso-hirsuti; folia supra glabra, subtus in axillis venarum majorum hirsuta, fere 5-pli-nervia; panicula et hypanthium glabrum.

Shrub 1--1.5 m. tall. Younger branches prominently 4-angled, glandular-hirsute with stiff spreading hairs about 1 mm. long. Leaf-blades elliptic-lanceolate, up to 15 cm. long and 5 cm. wide, subacuminate, gradually narrowed to a rounded base, remotely denticulate with minute, appressed, subulate, callous teeth, obscurely 5-pli-nerved, glabrous on the upper surface, the primaries impressed, secondaries obscure, tertiaries obsolete; lower surface glabrous, the secondaries prominulous, the tertiaries obscure, the three inner primary veins densely hirsute at the very base with simple hairs up to 2 mm. long; many of the secondaries, as far as the middle of the leaf, bearing a few similar hairs close to the primaries. Panicle glabrous, pyramidal, up to 8 cm. long; flowers 5-merous, sessile in clusters of 3--5. Hypanthium glabrous, hemispheric, about 2 mm. long. Calyx 0.8 mm. long, the tube about equaling the very thin depressed-triangular lobes; exterior teeth adnate, acute, shorter than the sepals. Petals white, quadrate-obovate, about 1 mm. long and wide. Stamens isomorphic; filaments geniculate near the summit; anthers of Cremanium, broadly oval, 2-celled, opening by a large terminal pore; connective thickened and widened around the base of the thecae.

Type, Cárdenas 3984, collected near Chulumani, Bolivia, in open places on wet slopes, altitude 2700 m., deposited in the herbarium of the New York Botanical Garden. In the section Cremanium only a few species are hirsute with unbranched hairs; these are numbered 413 to 420 in Cogniaux' Monograph, while five others have been described more recently. Some of these have larger pediceled flowers; others have leaves pubescent to scabrous above, or narrower or 3-nerved leaves and not one has the glandular pubescence of our species. In every flower dissected the anthers lie at a right angle to the usual position. This feature probably has no taxonomic significance but has served to suggest the specific name.

In 1931, when I discussed the myrmecophilous species of Clidemia, I called attention to the apparent close relation of Clidemia ciliata Don to the plant then generally known as Maieta testiculata (Triana) Cogn. and transferred the latter to Clidemia. The gradual accumulation of herbarium material since that time has served to confirm this opinion. I also noted that formicaria had been observed on only one specimen of C. ciliata. The presence or absence of formicaria seems to be merely a secondary character to be subordinated to the more important features of hypanthium, stamens, and stigma and the general aspect.

Four other described species are also referable to this species-group: C. cymosa Gl. (1925) of Colombia, C. tovarensis Pitt. (1947) of Venezuela, C. elata Pitt. (1947) of Venezuela, and C. impetiolaris (Naud.) Cogn., described originally as C. pilosa by Don (1823). I have been able to examine types or isotypes of all six species and have concluded that they should be reduced to three. All are variable as to size of plant, leaf and flower, density of pubescence, and development of formicaria but the nature and extent of these variations are not sufficient, in my opinion, to warrant segregation of additional species.

The original collections of C. ciliata and C. pilosa by Ruiz and Pavon in Peru are not specifically separable. When combined into one, C. ciliata is the name to be maintained, partly because it has been in general use for many years and partly because C. pilosa has been used as an invalid homonym for a Jamaican plant.

In describing C. testiculata, Triana had before him one of his own collection from the vicinity of Villavicencio and a second collected by Moritz in the Venezuelan Andes of Mérida. The former is the actual type: it agrees better with his description, while his phraseology makes it evident that the Moritz plant was merely another specimen. The leaves of the type are ovate-oblong in shape, widest near the middle, and the cyme has a long peduncle. On the Moritz plant, the

leaves are widest well below the middle and the cyme is sessile, the three branches arising essentially from the axil of the leaf.

These characters of the typical C. testiculata are precisely those which were used in distinguishing my C. cymosa, also from Villavicencio. My species is accordingly reduced to synonymy.

For many years past, the epithet testiculata, either in Maieta or in Clidemia, has commonly been used for the Mérida plant or others conspecific with it. It is now necessary to find a name for it and the need was apparently not met until 1947, when Pittier described two new species from Mérida, C. elata and C. tovarensis. A careful examination of isotypes indicates that these two are conspecific with each other and with the Moritz plant. As the name to be maintained for this common species I choose C. elata. It is widely distributed and proportionately variable. Plants from Venezuela and the eastern Cordillera of Colombia have leaves sessile or nearly so and open, loosely flowered cymes up to 6 cm. long. Plants from El Valle and Antioquia may have similar cymes, but the leaves average larger and at least one of each pair is petiolate, the petiole up to 2 cm. long. Other plants from these two states have smaller leaves, up to 8 cm. long and proportionately narrower, and very densely congested cymes. I see no present reason for separating them as species or for giving them infraspecific names.

The three species, as now understood by me, may be distinguished by the following key:

Pubescence of the younger stems, branches of the cyme, and hypanthium composed of stellate hairs, usually forming a dense tomentum; pubescence of the lower leaf-surface of short stipitate-stellate hairs. C. ciliata.

Pubescence of the younger stems, branches of the cyme, and hypanthium composed primarily of simple hairs (a few of them possibly glandular); pubescence of the lower leaf-surface entirely of simple eglandular bristles.

Cyme 10--15 cm. long, on a peduncle 5--8 cm. long. C. testiculata.

Cyme sessile or with an obscure peduncle up to 5 mm. long. C. elata.

Leandra Phelpsiae sp. nov. Frutex caule pubescente; folia petiolata, ovato-lanceolata vel ovata, acuta vel acuminata, minute undulata, basi subcordata, supra glabra, subtus atro-puncticulata, 5-nervia; flores 5-meri sessiles fasciculati in panicula terminali ramosa glandulosa; hypanthium

plus minus glandulosum; calycis tubus fere truncatus, dentibus exterioribus parvis subulatis; petala non visa; stamina isomorpha.

Branching shrub, the stems and petioles densely pubescent with simple spreading hairs. Leaves ovate-lanceolate to ovate, up to 11 by 6.5 cm., acute to acuminate, minutely and obscurely undulate, subcordate at base, glabrous and more or less shining on the upper side and on the primary veins minutely strigose, beneath glabrous, freely black-puncticulate, pubescent like the petioles on the primaries and sparsely so on the secondaries, 5-nerved, with an outer pair of marginal veins. Flowers 5-merous, subsessile in small cymules at the ends of a repeatedly branched panicle 1--1.5 dm. long, on a sparsely glandular-pubescent peduncle 5--7 cm. long. Hypanthium short-cylindric, 2.8 mm. long, densely pubescent with short, spreading, simple hairs, also sparsely glandular-hirsute with stouter hairs about 0.4 mm. long. Calyx-tube prolonged 0.5 mm., truncate, the exterior teeth spreading, subulate, 0.4 mm. long. Petals lacking. Stamens straight and erect, isomorphic; filaments flat, 1.5 mm. long; anthers 3.4 mm. long, straight, subulate, the connective slightly raised near the base. Ovary superior, prominently 10-ribbed, glandular-setose at the summit; style glabrous, 3 mm. long.

Type, Phelps 474, collected on Serranía Parú, in southern Venezuela, deposited at the New York Botanical Garden.

Petals seem to be completely lacking, even in the unopened flowers. The plant has been referred to Leandra by its general habit and by the structure of the connective. It is quite unlike every other species of the genus so far as they are known to me. Only one plant was observed by the collector, in whose honor the species has been named.

Graffenrieda grandifolia sp. nov. Frutex grandifolius; folia late rotundato-elliptica, basi subcordata, 3-nervia, nervis lateralibus ad marginem proximis; flores 5-meri breviter pedicellati in racemis spiciformibus ut videtur paniculatis; calyx calyptratus ad anthesis irregulariter ruptus.

Shrub 4 m. tall, glabrous to the inflorescence. Petioles stout, 4--5 cm. long. Blades subcoriaceous, broadly elliptic, as much as 30 cm. long by 23 cm. wide, at the summit broadly rounded, entire, broadly rounded below to a subcordate base, 3-nerved, the lateral pair about 7 mm. from the margin and paralleled by an outer arcuate marginal vein. Inflorescence apparently a compound raceme, the axes densely and minutely pubescent; pedicels 3--5 mm. long. Hypanthium thick-walled, 6.6 mm. long to the torus, densely pubescent with simple hairs about 0.2 mm. long. Calyx rounded in the bud, ruptured into a few irregular lobes and deciduous early almost at the torus. Petals white, obtusely rounded, ovate-

oblong, 14 mm. long, slightly inequilateral. Stamens isomorphic, all pointed in one direction; filaments mostly twisted toward the base, about 5.5 mm. long; anthers arcuate, subulate, convolute, about 6 mm. long; connective prolonged into a sharp, subulate, erect, dorsal spur 1.9 mm. long.

Type, Uribe Uribe 1890, from Hacienda San Agustín, cerca al Río Samaná, Nariño, Antioquia, altitude about 1000 m., in the United States National Herbarium. Several species of Graffenrieda are characterized by lateral leaf-nerves placed very near the margins, but it will be impossible to discuss the relationship of our plant until these species are better known.

More peculiar species of Blakea and Topobea continue to arrive from the wetter parts of tropical America, and there is good reason to believe that still others await discovery. As I have noted before, there is no means of distinguishing the two genera except by the stamens, and these may be lacking in herbarium material. Of the eight described below, all but two exhibit stamens. These are placed in Topobea because they have a distinct similarity in habit to other species of that genus.

Topobea elliptica sp. nov. Frutex epiphyticus, caules primo sparsim furfuracei pilis ovato-inflatis atque glanduloso-hirsutis; folia sessilia amplexicaulia oblonga vel obovato-oblonga; flores 6-meri, longe pedicellati ex axillis foliorum; bracteae distinctae foliaceae rotundatae hypanthium aequantes; sepala triangularia; petala staminaque desiderantur.

Epiphytic shrub about 2 m. tall; upper part of the stem with a sparse and deciduous indument of short, stoutly conic hairs interspersed with slender, spreading, glandular hairs, the same developed on the bracts and sparsely on the leaves. Leaves sessile, oblong or obovate-oblong, up to 7 cm. long and 4.5 cm. wide, rounded at the summit, subcordate-clasping at base, 3-nerved. Pedicels axillary, solitary, up to 4 cm. long. Flowers 6-merous. Bracts foliaceous, separate to the base, broadly rounded, about equaling the hypanthium. Sepals triangular, recurved after anthesis.

Type, Allen 5001, from Robalo Trail, northern slopes of Cerro Horqueta, Province of Bocas del Toro, Panama, altitude 1800 to 2100 m., preserved in the herbarium of the Missouri Botanical Garden. In general aspect the plant is reminiscent of T. Brenesii of Costa Rica, to which it is probably closely related. Our plant has much longer pedicels and narrower leaves.

Topobea cordata sp. nov. Frutex parvus epiphyticus glaber; folia sessilia ovata acuta integra subcordata 5-nervia; flores 6-meri, brevissime pedicellati et solitarii in axillis foliorum; bracteae distinctae foliaceae, hypanthio longiores; sepala late elliptico-ovata, hypanthium aequantia. Petala staminaque desiderantur.

Epiphytic shrub 0.5 m. tall, smooth throughout. Leaves sessile, ovate, as much as 7.5 by 5 cm., acute, rounded to a subcordate base, entire, 5-nerved with an additional obscure pair of marginals. Flowers 6-merous, soiltary in the axils; pedicels about 1 mm. long. Bracts foliaceous, broadly elliptic, distinct to the base, the outer 11 mm., the inner 8 mm. long. Hypanthium hemispherical, 3.8 mm. long to the torus. Calyx-tube prolonged about 0.7 mm.; sepals broadly elliptic-ovate, 4 mm. long from the torus, 3 mm. wide, obtuse, somewhat imbricate at base. Petals and stamens lacking.

Type, Allen 4178, collected in the Cerro Pajita, north of El Valle de Antón, Coclé Province, Panama, altitude 1000 to 1200 m. Species with strictly sessile leaves are few in Blakea and Topobea. Our plant is quite unlike any other described species in either genus, and is assigned to Topobea because of its superficial resemblance to T. stellaris.

Topobea Cooperi sp. nov. Frutex epiphyticus, caulibus nodis incrassatis; folia petiolata, elliptica vel elliptico-obovata, glabra, abrupte rotundata in apiculum brevem, basi late cuneata, utrinque glabra, 3-nervia fere 3-pli-nervia, venulis secundariis ca. 0.6 mm. dissitis; pedunculi fasciculati; bracteae distinctae exteriores acutae interiores breviores rotundatae; calyx in alabastro fere clausus ad anthesin irregulariter ruptus.

Epiphytic, reported up to 1 m. tall. Stems thickened at the nodes, glabrous. Petioles stout, 1--2 cm. long. Blades elliptic to elliptic-obovate, up to 10 cm. long, about half to two-thirds as wide, abruptly narrowed to a short slender point, very broadly cuneate at base, glabrous on both sides, 3-nerved or almost 3-pli-nerved, with an additional pair of marginal veins; secondary veins straight, fine, 0.5--0.7 mm. apart. Flowers 6-merous, superposed in axillary clusters of 3--5 on pedicels 2--11 mm. long. Bracts distinct, the outer oblong-obovate, 8 mm. long, 4.5 mm. wide, acute, thinly and sparsely furfuraceous, the inner broadly rounded or subtruncate, about two-thirds as long. Hypanthium at anthesis subcylindric, 6 mm. long, glabrous. Calyx in bud ovoid, almost closed, at anthesis irregularly torn into several segments. Petals pink, 11.5 mm. long, 6 mm. wide, very unsymmetrical. Stamens isomorphic; filaments flat, 4.7 mm. long, glabrous; anthers coherent in a ring, lance-subulate, 6 mm. long, connective prolonged at base into a straight subulate spur 0.8

mm. long. Style 13 mm. long, tapering distally to a punctiform stigma.

Type, Cooper 199, from the Cricamola Valley, Bocas del Toro Province, Panama, in the herbarium of the New York Botanical Garden. It resembles Standley's species T. pluvialis and T. urophylla in general aspect, but bears more numerous flowers on shorter stalks and differs notably in the structure of the calyx.

Topobea praecox sp. nov. Arbor caulibus crassis et internodiis ramorum floriferorum brevissimis; folia ad anthesin nondum explicata, laminae ellipticae acuminatae; flores fasciculati pedicellati; bracteae distinctae, subaequales, late rotundatae, glabrae; sepala breviter ovata, apice rotundata; petala purpurea.

Shrub or tree 6--20 m. tall, the smooth branches thick and rather fleshy; internodes on the flowering branches only 5 mm. long. Leaves lacking or very immature at anthesis, 5-nerved, apparently elliptic and acuminate, certainly as much as 10 cm. long, the secondary veins 1--2 mm. apart. Flowers 6-merous, in fascicles of 2 or 3, on essentially smooth pedicels 1 cm. or less long. Bracts separate to the base, glabrous or nearly so, rotund or a little wider than long, the outer 8 mm., the inner 7 mm. long. Hypanthium broadly campanulate, 4.7 mm. long, the basal portion obscurely ribbed, thin-walled, the upper thicker and rugulose. Calyx-tube 1.7 mm. long, slightly flaring; sepals depressed-ovate, 3.3 mm. long from the sinuses. Petals 17 mm. long, 9 mm. wide, narrowly and obliquely obovate, rose-purple. Filaments flat, about 13 mm. long; anthers straight, subulate, coherent in a ring, 9 mm. long, opening by 2 minute ventro-terminal pores; connective prolonged into a conic spur 1.1 mm. long.

Type, Allen 2788, from the vicinity of La Mesa, near El Valle de Antón, Coclé Province, Panama, in the herbarium of the New York Botanical Garden. Allen 1742 and 2067 are conspecific and come from the same locality, altitudes of 600--1000 meters. Allen 294 is apparently the same, but was collected in Darien Province at only 15 m. altitude. Smith 1844 from Alajuela Province, Costa Rica, also belongs here. Our T. praecox seems to be closely related to T. Regeliana, but in that species the leaves are full grown at anthesis, while the calyx-lobes are essentially obsolete.

Blakea foliacea sp. nov. B. gracili Hemsl. affinis sed differt foliis oblongo-ellipticis manifeste 5-pli-nerviis, venulis secundariis 1--1.5 mm. dissitis, pedunculis crassis et pubescentibus, calycis lobis late triangularibus, petalis anguste cuneato-obovatis valde asymmetricis.

Tree up to 18 m. tall, the younger parts, petioles, and peduncles closely pubescent with red-brown hairs. Petioles slender, 1--2 cm. long. Leaf-blades oblong, oblong-elliptic, or somewhat obovate-oblong, up to 14 cm. long, half as wide, abruptly acuminate to a slender tip 10--12 mm. long, obtuse to rounded at base, glabrous, distinctly 5-pli-nerved, the outer pair in mature leaves 3--5 mm. from the margin, with an additional pair of marginal veins; secondary veins 1--1.5 mm. apart. Peduncles solitary in the axils, 3--6 cm. long, about twice the diameter of the subtending petioles. Bracts foliaceous, separate to the base, spreading, ovate or ovate-oblong, theouter about 3 cm. long and 2 cm. wide, the inner about two-thirds as large. Hypanthium cup-shaped, 6.5 mm. long to the torus. Calyx saucer-shaped, about 2 mm. wide to the broadly rounded sinuses, the six lobes depressed-triangular, about 1.5 mm. longer. Petals white, cuneate-obovate, 3 cm. long, very unsymmetrical. Anthers broadly oval, 6 mm. long; connective barely elevated at base into a minute protuberance.

Type, von Wedel 2219, collected at Fish Creek, vicinity of Chiriquí Lagoon, Bocas del Toro Province, Panama, in the herbarium of the New York Botanical Garden. Von Wedel 2277, from Fish Creek Mountains, and Allen 2312, from the vicinity of La Mesa, Coclé Province, altitude 1000 m., are the same. The plant has heretofore been referred to B. gracilis Hemsl. It resembles that species superficially, but differs in the features stated in the diagnosis above.

Blakea crinita sp. nov. Arbuscula macrophylla crinita; folia coriacea late elliptica, utrinque rotundata, 5-nervia, supra fere glabra, subtus ad nervos hirsuta; flores 6-meri, subsessiles, solitarii vel bini in axillis foliorum. Bracteae dense hirsutae; petala flabellato-obovata, magna; stamina isomorpha, late elliptica; connectivum minutissime calcaratum.

Stout spreading shrub 3--6 m. tall. Upper parts of the stem and petioles densely hirsute with crowded hairs up to 4 mm. long. Petioles 1.5--3 cm. long. Blades broadly elliptic, coriaceous, up to 14 cm. long and 11 cm. wide, round at both ends, 5-nerved with an extra pair of marginal veins, smooth and dull green above (at least when full grown), long-setose on the primary nerves beneath, slightly so on the secondary veins, and very sparsely pilose on the surface. Flowers 6-merous, solitary or paired, and essentially sessile in terminal and axillary clusters. Petals pink, flabellate-obovate 21 mm. long, 18 mm. wide. Stamens isomorphic; anthers flat, broadly elliptic, 6 mm. long, rounded at both ends, opening by two minute pores; connective bearing near the base a spur only 0.2 mm. long.

Type, Allen 3956, from the elfin forest, crest of Cerro Pajita, north of El Valle, Coclé Province, Panama, altitude 1200 m. The involucre and hypanthium are so densely hirsute that their structure could not be determined satisfactorily. There is no doubt of the close relationship of this species to B. brunnea, from which it differs in its longer petioles, shorter pedicels, longer pubescence of the stem, and densely hirsute veins of the leaves.

Blakea parvifolia sp. nov. Arbuscula parvifolia; folia cuneato-obovata, subito in apiculum rotundata basi longe cuneata; flores 4-meri, solitarii, breviter pedicellati in axillis foliorum; bracteae ad basin distinctae, hypanthio breviores; antherae semi-ovatae acutae, poris 2 dorso-terminalibus dehiscentes.

Stout spreading tree 10 m. tall with glabrous branches, the leafy twigs with internodes less than 1 cm. long. Leaves glabrous, essentially isomorphic. Petioles slender, about 7 mm. long. Blades cuneate-obovate, up to 35 mm. long, about half as wide, rounded above to a short obtuse apiculum, entire, long-cuneate at base, 3-nerved. Flowers solitary in the axils, 4-merous (at least as to the calyx), on glabrous pedicels about 1 cm. long. Bracts separate to the base, oblong-ovate, very blunt, shorter than the hypanthium. Hypanthium spherical, glabrous, 3 mm. long. Sepals depressed-triangular, somewhat spreading, acute, about 2 mm. long from the torus. Petals oblong-obovate, 8.4 mm. long, 5 mm. wide, obtuse. Stamens isomorphic, coherent in a ring, the filaments stout but flattened, 4 mm. long; anthers strongly flattened, semi-ovate, 3.2 mm. long, acute, emarginate at the tip, each pollen-sac opening by a separate dorso-terminal pore.

Type, Allen 3761, from crest of Cerro Pajita, El Valle de Antón, Coclé Province, Panama, altitude 1100 m. The one flower remaining had lost part of its petals and stamens but there was no evidence that there had been more than four of the one and eight of the other. The foliage reminds one of Blakea gracilis, except for its small size.

Blakea pauciflora sp. nov. Arbuscula; folia parva petiolata late elliptico-obovata apiculata; flores solitarii in axillis pedicellati 6-meri; bracteae distinctae late triangulares quam hypanthio paulo breviores; calycis tubus patulus hexagonus, lobis brevissimis tuberculiformibus.

Tree 6--7 m. tall, glabrous throughout. Younger stems slender, with 2 longitudinal furrows and appearing 4-angled. Petioles slender, 8--10 mm. long. Blades (excluding the tip) broadly elliptic-obovate, as much as 52 mm. long (including the tip) and 30 mm. wide, rounded above into an obtuse, narrowly triangular apiculum 6--10 mm. long, broadly cuneate at

base, 5-nerved, the lateral pair only 0.5 mm. from the margins, with an additional pair of obscure marginal veins, the secondary veins very fine, only 0.2 mm. apart; between the 3 central primaries at their base a pair of oblong formicaria 3--4 mm. long. Pedicels solitary, slender, about 2 cm. long. Flowers 6-merous. Bracts separate to the base, broadly triangular, each series 2.5 mm. long. Hypanthium broadly cup-shaped, 3 mm. long, 4.5 mm. wide across the top. Calyx widely flaring, 1.1 mm. wide at the sinuses, 1.5 mm. wide at the lobes, the latter represented by minute tubercles. Petals white, broadly semi-obovate, 9 mm. long. Filaments 3.8 mm. long; anthers oval, 2.7 mm. long; connective neither spurred nor elevated.

Type, Maurice 744, collected at the base of Sierra del Boquete, Panama, in the herbarium of the New York Botanical Garden. This is another of the numerous species of the genus whose relationship can not be profitably discussed until the classification of all of the species is greatly improved. It may be recognized easily by its foliar formicaria.

Blakea sphaerica sp. nov. Frutex glabra; folia oblonga, coriacea, breviter apiculata; flores 6-meri, pedicellati in axillis, solitarii vel bini; bracteae distinctae, exteriores coriaceae, late ellipticae, apiculatae, interiores breviores obovatae; calyx patulus vix lobatus, lobis minutis triangularibus; antherae horizontales, connectivo valde dilatato in calcar conicum.

Shrub 3 m. tall, glabrous throughout. Petioles about 1 cm. long. Leaf-blades coriaceous, oblong or elliptic-oblong, up to 12.5 cm. long by about half as wide, abruptly tapering to both ends or somewhat apiculate, 3-nerved, densely brown-puncticulate beneath; secondaries 1.5-2 mm. apart, diverging at about 75°; basal sinus between the primaries concealed by tissue, forming a small cavity from which bristles protrude. Flowers 6-merous, solitary or paired in the upper axils, the pedicels 2--3 cm. long. Bracts separate to the base, coriaceous, the outer broadly elliptic, 32 mm. long, 28 mm. wide, apiculate, the inner obovate, acute, 24 mm. long. Hypanthium hemispheric, 8 mm. long. Calyx spreading, 1.5--3 mm. wide, the minute lobes triangular. Petals flabellate-obovate, 27 mm. long, pink. Filaments flat, 9 mm. long; anthers coherent, horizontal, about 4 mm. long, opening by 2 minute terminal pores; connective very much expanded into a conic spur 7 mm. high. Ovary wholly inferior, six-celled; style stout, 13 mm. long, tapering to a punctiform stigma.

Type, Johnson & Barkley 180838, collected in the mountains east of Sonsón, Antioquia, Colombia, altitude 2800 m., in the herbarium of the New York Botanical Garden. It may be distinguished from other Colombian species by its large di-

morphic bracts and enormously expanded connectives. Another interesting feature is the development of small cavities at the base of the leaves which may serve as formicaria.

Conostegia Haughtii Gl. is combined with Conostegia micromeris Standley under the latter name.

Conostegia sororia Standley is combined with Conostegia puberula Cogn. under the latter name.

Conostegia excelsa Pittier, described originally from a flowerless specimen, has since been collected in flower, and proves to be Meriania macrophylla (Benth.) Triana.

Conostegia hirsuta nom. nov. (Cryptophysa setosa Standley & Macbride.) The original description is excellent and needs no emendation. Unfortunately the appropriate specific epithet can not be transferred, since it is already used for Conostegia setosa Triana. The two species are indeed closely related and differ most conspicuously in foliage characters. In C. setosa, of Colombia, the leaves are cuneate to a subsessile base, while in C. hirsuta, of Panama, they are long-petioled and rounded at base.

Clidemia spectabilis Gl.(1931) and Clidemia reflexa Gl. (1939) are poorly known species of Costa Rica with the general habit of the well known C. setosa (Tr.) Gl., but belonging in a different section of the genus. I now have before me five other collections representing three closely related species. All have strongly reflexed hairs on the stem, as in C. reflexa; all have formicaria, as in C. spectabilis; all have slender exterior teeth much surpassing the ovate obtuse calyx-lobes, as in both of my original species. The leaves of all three are strongly long-setose beneath, but lack the underlying indument of villous hairs. These features will distinguish them from the two earlier species. I am reluctant to describe species from such scanty material, and do so only because two of them will be included in the forthcoming discussion of the melastomes of Panama.

Clidemia collina sp. nov. Frutex caulibus reflexo-setosis; paniculae congestae axillares setosissimae; flores 5-meri; formicaria tumida ad apicem petioli; laminae oblongo-obovatae, 7-pli-nerviae, supra sparse setosae, subtus setosae ad venas venulasque, inter venulas fere glabrae, paniculae congestae setosissimae; hypanthium campanulatum, 3.2 mm. longum, longe (usque 10 mm.) pauciseto sum; dentes exteriores subulati, calycis lobis oblongis rotundatis multo longiores; corolla staminaque non visa.

Type (and only specimen examined), Allen 1820, collected at El Valle, Coclé Province, Panama, in the herbarium of the Missouri Botanical Garden.

Clidemia taurina sp. nov. C. collinae similis sed setae caulis formicarii et hypanthii multo breviores, et foliorum pagina inferior toto hirsuta; formicaria ovoidea didyma.

Type, H. von Wedel 1917, collected on Old Bank Island, Province of Bocas del Toro, Panama, in the herbarium of the Missouri Botanical Garden. Von Wedel's 703 and 925 are the same and come from the same vicinity.

Clidemia myrmecina sp. nov. Caulis reflexo-strigosus; petiolus ultra medium formicario lineari ornatus; folia magna, ovato-oblonga, 5--7-nervia, supra sparse setosa, subtus ad venas venulasque setosa; hypanthium poculiforme, 2.8 mm. longum, dense setosum; dentes exteriores subulati, calycis lobis longiores; petala alba, oblongo-obovata; stamina bene evoluta non visa.

Type, Metcalf and Cuatrecasas 30182, collected north of Dabeiba, Dept. Antioquia, Colombia, altitude 300-350 meters, in the herbarium of the University of California.

Heterocentron hondurensis sp. nov. Flores 4-meri, breviter pedicellati in cymulis paniculatis; hypanthium sparse hirsutum, pilis basi verrucosis; sepala glabra triangulari-lanceolata; petala ciliolata rosea; antherae exteriores lineares, connectivo longe producto ad apicem filamenti, infra filamentum in calcaria 2 longa; ovarium glabrum summo breviter 4-lobum.

Stem 4-angled, very thinly strigose, especially on the angles, more densely so distally. Petioles densely strigose, about 5 mm. long. Blades lance-oblong, up to 35 mm. long and 10 mm. wide, minutely pilose above, thinly strigose beneath, about 11-pli-nerved. Flowers 4-merous, short-pediceled, in terminal cymules forming a large panicle. Hypanthium 3 mm. long, sparsely covered with reddish warts each tipped with a slender hair 0.3 mm. long. Sepals triangular-lanceolate, 4.9 mm. long, acuminate to a carinate tip, glabrous. Petals obovate, pink, 5 mm. long, minutely glandular-ciliolate. Stamens dimorphic; filaments 4.2 or 5 mm. long; anthers linear, 3.5 or 3.7 mm. long, the connective of the smaller not prolonged but minutely 2-lobed at base, that of the larger prolonged straight back 2 mm. to the summit of the filament and below the filament 1.9 mm. farther into two straight slender spurs. Ovary glabrous, prolonged at the summit into 5 short oblong lobes.

Type, Allen 3899, from clearing in pine and oak forests on Cerro Uyuca, Dept. Morazan, Honduras, alt. about 1500 m., in the herbarium of the Missouri Botanical Garden. It seems to be nearest to H. floribunda Gl., of Durango, Mexico, differing in its simple pubescence, and H. axillaris Naud., of southern Mexico and Guatemala, in which the ovary is setose.